

REMARKS

By the present Amendment, the subject matter of claim 3 has been incorporated into claim 2 and claim 3 has accordingly been canceled. In addition, new claim 11 has been added relating to the subject matter disclosed at least in the passage at page 14, lines 3-9.

Applicant respectfully submits that the presently claimed invention is patentable over the combinations of prior art set forth in the Action, as the combinations would not lead to the present invention and, even if proper, are rebutted by the evidence of record.

As recited in amended claim 2, one aspect of the present invention provides a polyamide resin composition which comprises 30 to 80 percent by mass of a defined polyamide resin (A) 10 to 60 percent by mass of an inorganic filler (B), and 5 to 50 percent by mass of a white pigment (C), wherein the composition further comprises an ultraviolet absorber (D) and a hindered amine compound (E), both of the ultraviolet absorber (D) and the hindered amine compound (E) having a heating mass reduction ratio of 50 percent by mass or less when held at 340°C for 10 minutes under a nitrogen atmosphere and wherein the ultraviolet absorber (D) is one or more compounds selected from a benzotriazole compound, a triazine compound or a benzophenone compound. New claim 11 defines the hindered amine compound (E) further as being N,N',N'',N'''-tetrakis-(4,6-bis-(butyl-(N-methyl-2,2,6,6-tetramethylpiperidin-4-yl)amino)-triazin-2-yl)-4,7-diazadecane-1,10-diamine or poly[{{6-((1,1,3,3-tetramethylbutyl)amino)-1,3,5-triazine-2,4-diyl}}{(2,2,6,6-tetramethyl-4-piperidyl)imino}hexamethylene{(2,2,6,6-tetramethyl-4-piperidyl)imino}}], which are compounds used in the Examples.

The advantageous results which can be obtained by the present invention are shown in the illustrative and comparative Examples provided in the specification, the

results of which are summarized in Table 1 on pages 27-28. If one considers Examples 3-5, one can understand that the combination of the defined ultraviolet absorber and hindered amine compound can provide excellent characteristics, including reflection retention. When such results are contrasted with Comparative Example 4, which includes an ultraviolet absorber (D2) that does not meet the recited heating mass reduction ratio or Comparative Example 5 which does not include the defined ultraviolet absorber, but includes an increased amount of the hindered amine compound (D3), the reflection retention is substantially lower. In this regard, Example 3 and Comparative Example 4 are identical formulations with the exception that Comparative Example 4 includes the different ultraviolet absorber (D2). Examples 3-5 also provide superior results relative to Comparative Examples 1-3 which contain neither the ultraviolet absorber nor the hindered amine compound, both of which are defined as having a heating mass reduction ratio of 50% by mass or less when held at 340°C for 10 minutes under a nitrogen atmosphere.

Upon reviewing the combinations of prior art now relied on in the Official Action, it is apparent that a search has been made to find the individual components of applicant's invention and a rationale has been developed in an attempt to justify the combination without consideration of the myriad reasons why one of ordinary skill in the art would be led away from the combination. In particular, Oka et al., U.S. Patent Application Publication No. 2004/0034152, describes a polyamide composition comprising 100 parts by weight of (A) a defined polyamide and 5 to 100 parts by weight of (B) a titanium oxide with an average particle size of 0.1 to 0.5 μm . Paragraph [0033] states that the polyamide composition can further contain (C) at least one reinforcing agent and paragraphs [0038-40] describe the possible presence of a light stabilizer (D) which can include UV absorbing compounds and

hindered amine compounds, as well as other materials such as hindered phenol compounds. The Examples of Oka et al. describe the presence of Nylostab S-EED and Sanduvor VSU as light stabilizers in paragraphs [0077] and [0078], respectively. Both of these light stabilizers are used in the illustrative compositions set forth in Table 1. It will be noted that neither of these compounds meets the definition of the ultraviolet absorber now recited in independent claim 2.

As explained in the previous response and again emphasized here, the polyamide of Oka et al. is substantially different from the polyamide composition defined in the claims of record. The document does not in any way lead those of ordinary skill in the art to the defined polyamide composition with the recited **combination** of the defined ultraviolet absorber (D) and a hindered amine compound (E). Oka et al. also does not recognize that the claimed heating mass reduction ratio of 50% by mass or less when held at 340°C for ten minutes under a nitrogen atmosphere has any effect on the composition and certainly does not recognize that there are certain ultraviolet absorbers and hindered amine compounds which have this heating mass reduction ratio and certain compounds which do not. Applicant again stresses that the exemplary stabilizers used in Oka et al. have been shown to not inherently meet the claimed heating mass reduction ratio in the Declaration Under 37 C.F.R. § 1.132 by the inventor provided with the previous response. In other words, guided by the specific exemplary stabilizers of Oka et al., those of ordinary skill in the art would be led to the understanding that a single light stabilizer is sufficient and that the single light stabilizer should be a compound which does **not** inherently have the claimed heating mass reduction ratio. Thus, it is without question that Oka et al. cannot be used as a basis for rejecting any of the claims of record.

The technical literature attached to the aforementioned Declaration provides evidence as to why the prior art would actually lead away from the present invention.

On page 11, lines 1-5, it is stated:

It is another feature of Sanduvor VSU, Hostavin PR-25 and Hostavin B-CAP XP that yellowish color due to metal ion is prevented. Fig. 8 shows test results when tetravalent titanium ion is added to ultraviolet absorber solutions in dichloromethane. After the addition, Sanduvor VSU and Hostavin PR-25 do not exhibit yellowish color, although benzotriazole, benzophenone and triazine compounds exhibit yellowish color form yellowing precipitate.

Thus, there is a technical reason why Oka et al. does not illustrate the use of benzotriazole, benzophenone and triazine compounds in the Examples and valid reasons why one of ordinary skill in the art would not seek to replace the illustrative compounds of Oka et al. with benzotriazole, benzophenone and triazine compounds which are reported as providing adverse results. In this regard, by using the claimed combination of the defined ultraviolet absorber and hindered amine compound, applicant has been able to obtain higher light stability as disclosed at page 13, lines 18-20.

In an attempt to meet the acknowledged differences between the claims and Oka et al., the Examiner has now relied on Akatsu et al., U.S. Patent No. 6,921,580, and Seltzer et al., U.S. Patent No. 4,876,300. The reliance on these documents clearly demonstrates that the Examiner has recognized the deficiencies of Oka et al., has tried to find prior art that piecemeal meets selected parts of the claims and has then tried to fit them together. This is improper and would be contrary to the teachings of the prior art. Akatsu et al. does not relate to a polyamide resin composition, as defined in the claims of record. Instead, Akatsu et al. relates to a polyester film which, as described in the paragraph starting at column 1, line 16, can be used as an anti-reflective layer. It will be noted that present polyamide resin

composition is useful as a reflector plate and one of the noted advantages of the composition is reflectance retention.

Akatsu et al. is further deficient by failing to teach the claimed combination of an ultraviolet absorber (D) and a hindered amine compound (E), both of which have a heating mass reduction ratio of 50% by mass or less. The Examiner has referred to single UV absorber in the patent and alleged that it would be obvious to use this compound in the composition of Oka et al. However, there is nothing in Oka et al. which would signal to one of ordinary skill in the art that the exemplary light stabilizers need replacing and there is similarly nothing in Akatsu et al. that would lead one of ordinary skill in the art to pick this single compound in the patent and use it in an entirely different environment. Indeed, the attempt to make this modification would be contrary to the teachings in the prior art that the triazine compound would cause yellowing.

The further reliance on Seltzer et al. is also without merit. Seltzer et al. relates to a polyolefin composition that includes long chain N,N-dialkylhydroxyl amines that are said to represent particularly valuable process stabilizers for polyolefin compositions. Starting in the passage beginning at the bottom of column 4, the patent describes that a stabilizer or mixture of stabilizers selected from the group consisting of alkaline metal salts of fatty acids, phenolic antioxidants, hindered amine light stabilizers, ultraviolet light absorbers, organic phosphorus compounds and thiosynergists can be present and proceeds to describe such stabilizers over the next six columns. Included in this extensive description is the one compound relied on by the Examiner, a compound that is not used in any example and is not distinguished from any other similar compounds.

Without improper resort to applicant's own specification, one of ordinary skill in the art would not search among the six columns of stabilizers and select this one compound from amongst the numerous others, most of which do not meet the types of compounds recited in claim 2. Seltzer et al. also does not specifically teach the claimed combination of the specific hindered amine compounds with the ultraviolet absorber with both having the defined mass reduction rate. Indeed, Seltzer et al. does not even mention that the defined mass reduction rate is an important consideration. Applicant also notes that the single compound relied on by the Examiner is not even the same compound used in the examples of the present application which is N,N',N'',N'''-tetrakis-(4,6-bis-(butyl-(**N-methyl**-2,2,6,6-tetramethylpiperidin-4-yl)amino)-triazin-2-yl)-4,7-diazadecane-1,10-diamine. Hence, the further reliance on Seltzer et al. would clearly not lead to the presently claimed invention.

Even if there existed some basis for attempting to combine the disparate teachings of the prior art, it still would not lead to the present invention or a recognition of the advantages which can be obtained therefrom. None of the prior art documents specifically teach the claimed combination of an ultraviolet absorber (which is one or more compounds selected from a benzotriazole compound, a triazine compound or a benzophenone compound) **and** a hindered amine compound with both types of compounds having a heating mass reduction ratio of 50% by mass or less when held at 340°C for 10 minutes under a nitrogen atmosphere. In fact, the evidence of record provides reasons against the combination proposed by the Examiner. Furthermore, the evidence of record demonstrates the importance of the claimed combination which provides substantial advantages over compositions containing neither of the defined compounds or just one of the defined compounds.

The additional grounds of rejection are even less relevant. JP 2000-204244 describes a polyamide composition which contains a certain amount of inorganic filler having an average particle size of 2 μm or below. In paragraph [0022], the JP '244 publication mentions a number of additives which can be present including an ultraviolet ray absorbent. Neither this paragraph nor any other portion of the JP '244 publication describes the specific ultraviolet ray absorbents recited in claim 2, much less the combination of the ultraviolet ray absorbent compounds and hindered amine compounds with both having the recited heating mass reduction ratio. Moreover, there is no ultraviolet ray absorbent or hindered amine compound used in the Examples and there is no recognition of the advantages which can be obtained in accordance with the present invention.

The further reliance on Oka et al., Akamatsu et al. and Seltzer et al. add nothing to the JP '244 publication. The latter three documents have all been discussed above and, while applicant again maintains that the attempt to combine the teachings from the chemically different compositions is not proper, particularly in view of technical evidence leading away from the combination, even if a proper basis existed, the combined disclosures thereof would still not result in applicant's invention or an appreciation of the advantages which can be obtained therefrom.

The final hypothetical combination of prior art which first relies on JP 07-228776 similarly falls far short from being sufficient to justify a rejection of the claims whether considered alone or in combination with any of the other cited prior art. The description in the JP '776 publication in paragraph [0023] only peripherally mentions an ultraviolet ray absorbent (but not the ones recited in claim 2) and again does not teach the importance of the combination of the ultraviolet ray absorbent and hindered amine compound. Moreover, the JP '776 publication is totally silent with

respect to the heating mass reduction ratio of 50% by mass or less as recited in claim 2 for both of these types of compounds and does not recognize the importance of this feature in obtaining the advantages discussed above and shown in the evidence of record. The further reliance on Oka et al., Akamatsu et al. and Seltzer et al. again do not remedy the deficiencies of the JP '776 publication and it is without question that the combination of documents would not lead one of ordinary skill in the art to the presently claimed invention or to an appreciation of the advantages which can be obtained therefrom.

Based on the claims and technical evidence now of record, applicant respectfully maintains that the claims are patentable in all regards and therefore requests reconsideration and allowance of the present application.

Should the Examiner wish to discuss any aspect of the present application, he is invited to contact the undersigned attorney at the number provided below.

The Director is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17 and 1.20(d) and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800.

Respectfully submitted,

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